

## HPA1000 Isolated Pulse Width Modulation Amplifier

### 1 Features

- Customized design
- Wide range supply voltage  $V_S$ : 16V~100V
- TTL Wide square wave signal input
- Continuous output current: 30A



$58.9 \times 40.4 \times 6.99 \text{mm}^3$

Weight: 55g

### 2 Scope of application

- DC motor drive control
- Drive the reactive load

### 3 Descriptions

HPA1000 isolated pulse width modulation amplifier is made of thick film hybrid integrated process with metal sealed shell package. Its input signal is TTL wide square wave, motor power supply voltage can reach up to 100V and output peak current can reach 40A; Product's design and manufacturing meet the MIL-STD and detailed specifications of the product requirements, the quality level is H-class.

### 4 Technical Specifications

Form 2 electrical characteristics

No	Character	Conditions $V_{CC}=5V \pm 0.25V$ $V_S=28V \pm 1V$ $-55^\circ\text{C} \leq T_c \leq 125^\circ\text{C}$ $R_L=10\Omega \pm 2\Omega$	HPA1000			Sym
			Group	Min	Max	
1	Static operating current/ $I_{CC}$	$V_{CC}=15V \pm 0.5V, V_I=5V \pm 0.5V$ 22.5KHZ square wave, Duty cycle $50\% \pm 10\%$	1/2/3	-	70	mA
2	Switching frequency / $f_o$	$I_o=5A \pm 0.5A$	4/5/6	-	22.5	KHZ

3	Output square wave voltage amplitude / $V_{OA}$	$I_o=5A\pm 0.5A$	1	23	32	V
4	Continuous output current / $I_o$	$V_s=100V\pm 10V$	1	9.8	10.2	A
5	Max input signal frequency / $f_{imax}$	$I_o=5A\pm 0.5A$	4/5/6	22	23	KHZ
6	The duty cycle /q	$I_o=5A\pm 0.5A$	4/5/6	5	95	%
7	Efficiency	$V_s=50V\sim 55V, R_L=5\Omega\pm 0.5\Omega$	1	95	-	%

## 5 Lead function descriptions

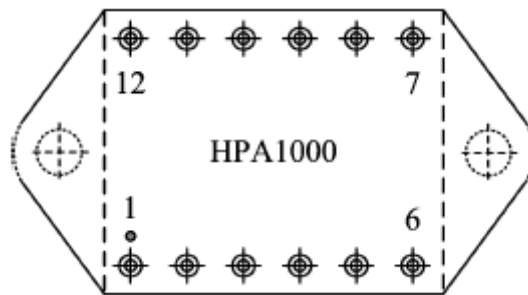


Fig 2 upward view

Form 3 Pin Designation

No	symbol	Designation	No	symbol	Designation
1	NC	NC	7	$GND_{V_s}$	$V_s$ Negative
2	$+V_{CC}$	$V_{CC}$ Positive	8	OUTB	Output B
3	VI	Signal input	9	$+V_s$	$V_s$ Positive
4	NC	NC	10	NC	NC
5	GND	input Ground	11	OUTA	Output A
6	NC	NC	12	$GND_{V_s}$	Output ground

## 6 Circuit principle frame diagram

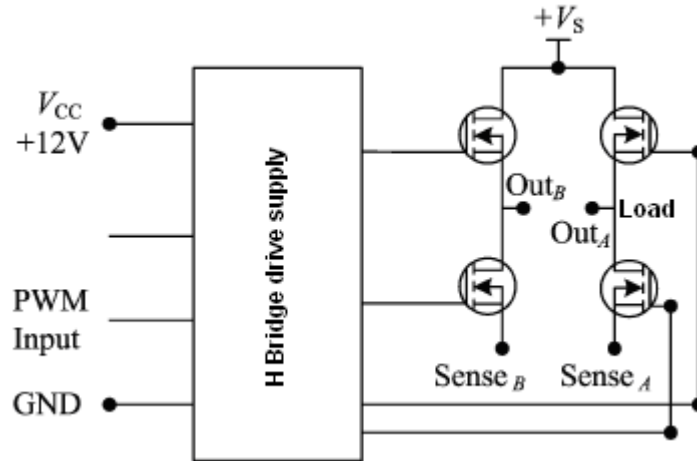


Fig 3 Circuit principle frame diagram

## 7. Typical Connection Diagram

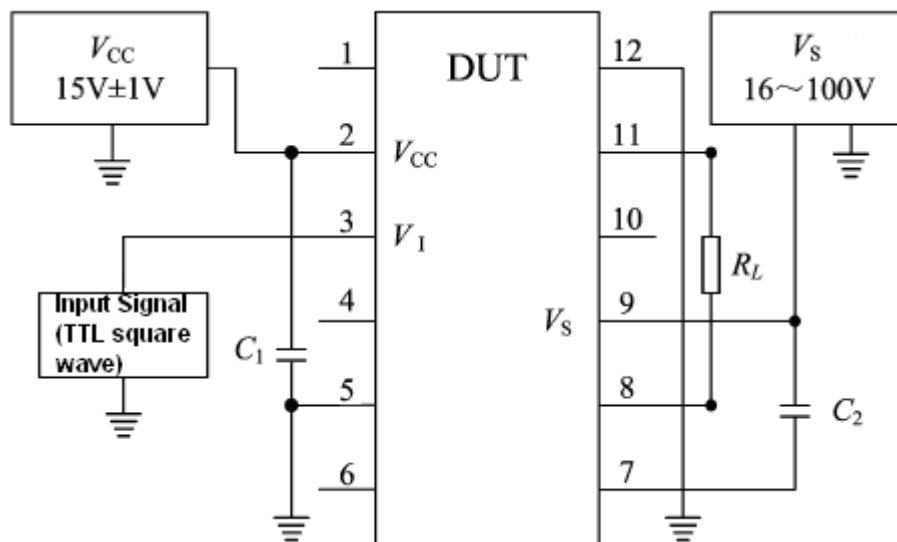


Fig 4 HPA1000 Typical connection Diagram

Notes: Power supply VS should have sufficient bypass capacitors to ensure proper operation, otherwise it may be unstable and reduce efficiency, and the output may be oscillated. Vs power supply should connect with a 1uF at least ceramic capacitor paralleled with a low ESR value bypass capacitor. The capacitance should be at least 10uF/A. for V<sub>CC</sub> also requires a 0.1uF~0.47uF ceramic capacitor and a low ESR value of 6.8uF~10uF parallel bypass capacitor, All bypass capacitors should be connected as close as possible to the corresponding power supply root.

## 8. Package Specifications

Circuit package outlines is shown in Fig 5 .

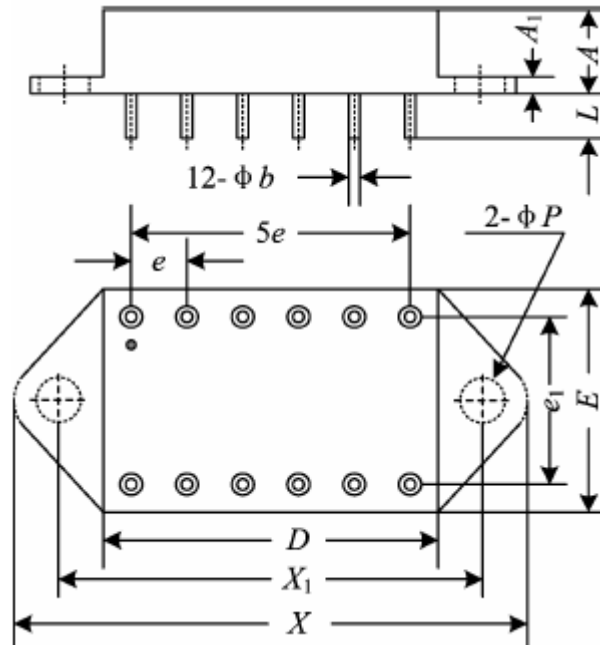


Fig 5 upward view

Notes: Dimensional tolerances not shown in the Fig:  $\pm 0.5\text{mm}$  Unit: mm

Application notes please refer to the appendix, must read it carefully